Amendments to the Claims

The following listing of claims replaces all prior listings and versions of claims in this application.

1. (Currently amended) An elastic freeze-dried biocompatible porous fibrin matrix useful as a scaffold for growing cells, wherein the matrix has substantially regular pores and a residual moisture below 3% and is obtained by mixing plasma proteins comprising fibrinogen and Factor XIII with thrombin and at least one anti-fibrinolytic agent in substantial absence of organic chelating agents ~~the matrix including plasma proteins comprising fibrinogen, thrombin and Factor XIII, and at least one anti-fibrinolytic agent, wherein at least 50% by weight of the total protein content is fibrin, and the matrix has substantially uniform pores, is substantially devoid of organic chelating agents and has a residual moisture below 3%~~.

2. (Currently amended) The matrix according to claim 1 wherein the plasma proteins are present with at least 0.5 units of thrombin per [[mg]] milligram of protein.

3. (Currently amended) The matrix according to claim 1 wherein at least one of the plasma proteins is autologous to a patient in need of the matrix.

4. (Currently amended) The matrix according to claim 1 wherein all the plasma proteins are autologous to a patient in need of the matrix.

5. (Currently amended) The matrix according to claim 1 wherein the anti-fibrinolytic agent is tranexamic acid ~~present in an amount of at least 5%~~.

6. (Original) The matrix according to claim 1 further comprising at least one auxiliary component selected from the group consisting of polysaccharides, anionic polysaccharides, glycosaminoglycans, or synthetic polymers.

7. (Original) The matrix according to claim 6 wherein the auxiliary component is selected from a group consisting of hyaluronic acid, pectin, alginate, galactans,

galactomannans, glucomannans, polyuronic acids, heparin, chondroitin sulfate, dextran sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, hexuronyl hexosaminoglycan sulfate, inositol hexasulfate, sucrose octasulfate and PEG.

8. (Original) The matrix according to claim 7 wherein the wherein the auxiliary component is dextran sulfate or hyaluronic acid.

9. (Original) The matrix according to claim 1 wherein the cells are stem cells or progenitor cells.

10. (Original) The matrix according to claim 1 wherein the cells are selected from the group consisting of chondrocytes, osteocytes, hepatocytes, mesenchymal, epithelial, urothelial, neuronal, pancreatic, renal and ocular cell types.

11. (Original) The matrix according to claim 1 wherein the cells attain a density of at least 10^4 cells per cm^3.

12. (Original) The matrix according to claim 1 further comprising at least one bioactive agent, selected from the group consisting of growth factors, cytokines, enzymes, anti-microbials, and anti inflammatory agents.

13. (Original) The matrix according to claim 1 having pores in the size range of 50-300 microns.

14. (Withdrawn, Currently Amended) ~~A freeze-dried biocompatible porous~~ The matrix of claim 1, wherein ~~prepared by a method comprising the steps of: mixing~~ the plasma proteins are mixed with the thrombin in the presence of the calcium ions and the at least one anti-fibrinolytic agent under conditions suitable for clotting ~~and in the substantial absence of organic chelating agents~~, optionally with adding of at least one auxiliary component thereto; and ~~casting~~ the mixture of plasma proteins, thrombin, anti-fibrinolytic agent and optional auxiliary agent are cast upon a solid support prior to clotting; ~~freezing~~ the clotted mixture is frozen; and ~~lyophilizing~~ the clotted mixture is lyophilized to obtain the matrix.

15. (Withdrawn) The matrix according to claim 14 wherein the plasma proteins

comprise at least fibrinogen and factor XIII.

16. (Withdrawn) The matrix according to claim 14 wherein at least one of the plasma proteins is autologous.

17. (Withdrawn) The matrix according to claim 14 wherein all the plasma proteins are autologous.

18. (Withdrawn) The matrix according to claim 14 wherein the plasma proteins are mixed with at least 0.5 units of thrombin per mg protein.

19. (Withdrawn) The matrix according to claim 14 wherein the anti-fibrinolytic agent comprises tranexamic acid in an amount of at least 5%.

20. (Withdrawn) The matrix according to claim 14 wherein the at least one auxiliary component is present and is selected from the group consisting of polysaccharides, anionic polysaccharides, glycosaminoglycans, and synthetic polymers.

21. (Withdrawn) The matrix according to claim 14 wherein the at least one auxiliary component is present and is selected from the group consisting of hyaluronic acid, pectin, alginate, galactans, galactomannans, glucomannans, polyuronic acids, heparin, chondroitin sulfate, dextran sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, hexuronyl hexosaminoglycan sulfate, inositol hexasulfate, sucrose octasulfate and PEG.

22. (Withdrawn) The matrix according to claim 20 wherein the auxiliary component is present and is dextran sulfate or hyaluronic acid.

23. (Withdrawn, Currently Amended) ~~A freeze dried biocompatible porous~~ The matrix of claim 1, wherein ~~prepared by a method comprising the steps of: mixing~~ the plasma proteins are mixed with the thrombin in the presence of the calcium ions and at least one anti-fibrinolytic agent under conditions suitable for clotting, ~~and in the substantial absence of organic chelating agents,~~ optionally with adding of at least one auxiliary component; and ~~casting~~ the mixture of plasma proteins, thrombin, anti-fibrinolytic agent and optional

auxiliary agent are cast upon a solid support prior to clotting; ~~freezing~~ the clotted mixture is frozen; and ~~lyophilizing~~ the clotted mixture is lyophilized to obtain a sponge; and ~~cutting~~ the sponge is cut into sections of desired shape to obtain the matrix; and further ~~comprising seeding~~ the sections are seeded with cells; ~~growing~~ the cells are grown on the sections until the cells reach a density of at least 104 cells per cm^3; and ~~implanting~~ the seeded sections are implanted in vivo.

24. (Withdrawn) The matrix according to claim 23 wherein the plasma proteins comprise at least fibrinogen and factor XIII.

25. (Withdrawn) The matrix according to claim 23 wherein at least one of the plasma proteins is autologous.

26. (Withdrawn) The matrix according to claim 23 wherein all the plasma proteins are autologous.

27. (Withdrawn) The matrix according to claim 23 wherein the plasma proteins are mixed with at least 0.5 units of thrombin per mg protein.

28. (Withdrawn) The matrix according to claim 23 wherein the anti-fibrinolytic agent comprises tranexamic acid in an amount of at least 5%.

29. (Withdrawn) The matrix according to claim 23 wherein the at least one auxiliary component is present and is selected from the group consisting of polysaccharides, anionic polysaccharides, glycosaminoglycans, and synthetic polymers.

30. (Withdrawn) The matrix according to claim 23 wherein the auxiliary component is present and is selected from the group consisting of hyaluronic acid, pectin, alginate, galactans, galactomannans, glucomannans, polyuronic acids, heparin, chondroitin sulfate, dextran sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, hexuronyl hexosaminoglycan sulfate, inositol hexasulfate, sucrose octasulfate and PEG.

31. (Withdrawn) The matrix according to claim 23 wherein the auxiliary

component is present and is dextran sulfate or hyaluronic acid.

32. (Withdrawn) The matrix according to claim 23 wherein the at least one auxiliary component is present and is a bioactive agent selected from the group consisting of growth factors, cytokines, enzymes, anti microbials, and anti-inflammatory agents.

33. (Withdrawn) The matrix according to claim 23 wherein the cells are selected from the group consisting of chondrocytes, hepatocytes, osteocytes, mesenchymal, epithelial, urothelial, neuronal, pancreatic, renal and ocular cell types.

34. (Withdrawn) ~~A freeze dried biocompatible porous~~ The matrix of claim 1, wherein ~~prepared by a method comprising the steps of: mixing~~ the plasma proteins are mixed with the thrombin in the presence of the calcium ions and at least one anti-fibrinolytic agent under conditions suitable for clotting, ~~and in the substantial absence of organic chelating agents,~~ optionally with adding of at least one auxiliary component; and ~~casting~~ the mixture of plasma proteins, thrombin, anti-fibrinolytic agent and optional auxiliary agent are cast upon a solid support prior to clotting; ~~freezing~~ the clotted mixture is frozen; and ~~lyophilizing~~ the clotted mixture is lyophilized to obtain a sponge having no more than 3% residual moisture; ~~optionally washing~~ the sponge is optionally washed to remove soluble auxiliary components; optionally ~~re-lyophilizing~~ the washed sponge is re-lyophilized to reduce the residual moisture to no more than 3%; ~~cutting~~ the sponge is cut into sections of desired shape to obtain the matrix; and ~~implanting~~ the sections of matrix are implanted in situ.

35. (Withdrawn) The matrix according to claim 34 wherein the plasma proteins comprise at least fibrinogen and factor XIII.

36. (Withdrawn) The matrix according to claim 34 wherein at least one of the plasma proteins is autologous.

37. (Withdrawn) The matrix according to claim 34 wherein all the plasma proteins are autologous.

38. (Withdrawn) The matrix according to claim 34 wherein the plasma proteins

are mixed with at least 0.5 units of thrombin per mg protein

39. (Withdrawn) The matrix according to claim 34 wherein the anti-fibrinolytic agent comprises tranexamic acid in an amount of at least 5%.

40. (Withdrawn) The matrix according to claim 34 wherein the at least one auxiliary component is present and is selected from the group consisting of polysaccharides, anionic polysaccharides, glycosaminoglycans, or synthetic polymers.

41. (Withdrawn) The matrix according to claim 34 wherein the at least one auxiliary component is present and is selected from the group consisting of hyaluronic acid, pectin, alginate, galactans, galactomannans, glucomannans, polyuronic acids, heparin, chondroitin sulfate, dextran sulfate, dermatan sulfate, heparan sulfate, keratan sulfate, hexuronyl hexosaminoglycan sulfate, inositol hexasulfate, sucrose octasulfate and PEG.

42. (Withdrawn) The matrix according to claim 34 wherein the at least one auxiliary component is present and is dextran sulfate or hyaluronic acid.

43. (Withdrawn) The matrix according to claim 34 wherein the at least one auxiliary component is present and is a bioactive agent selected from the group consisting of growth factors, cytokines, enzymes, anti microbials, and anti-inflammatory agents.

44. (Withdrawn) The matrix according to claim 34 wherein the cells are selected from the group consisting of chondrocytes, osteocytes, hepatocytes, epithelial, urothelial, neuronal, mesenchymal, pancreatic, renal and ocular cell types.

45. (Withdrawn) The matrix according to claim 34 which further comprises seeding the sections with cells and growing the cells on the sections until the cells reach a density of at least 104 cells per cm^3.

46. (Withdrawn) The matrix according to claim 34 which further comprises seeding the sections with cells in vivo at a site of treatment.

47. (Withdrawn) An implant comprising the matrix according to claim 14.

48. (Withdrawn) A method for treating injured tissue, the method comprising the step of implanting into an injury site an implant according to claim 47.

49. (Withdrawn) The method according to claim 48 wherein the injured tissue to be treated is skeletal tissue.

50. (Original) A porous coating for an implant comprising the matrix according to claim 1.

51. (New) The coating according to claim 50 wherein the matrix further comprises at least one auxiliary component selected from the group consisting of polysaccharides, anionic polysaccharides, glycosaminoglycans, or synthetic polymers.

52. (New) The matrix according to claim 1 wherein the plasma proteins and thrombin is mixed in the presence of calcium ions.

53. (New) The matrix according to claim 1 wherein the matrix has a tensile strength of at least about 0.2 kPa.

54. (New) The matrix according to claim 1 wherein the matrix is seeded with cells.

55. (New) The matrix according to claim 54 wherein the matrix is seeded with cells *in vivo* at a site of treatment.

56. (New) The matrix according to claim 6 wherein matrix is washed after lyophilization to remove soluble auxiliary components.